

CASE REPORTS

BILATERAL SUPERIOR VENÆ CAVÆ ACCOMPANIED BY PATENT DUCTUS ARTERIOSUS

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The most common congenital anomaly of the veins is a persistent left superior vena cava (Abbott, 1933), but the condition has only rarely been diagnosed during life. Abbott collected 36 examples of the condition, all recognized for the first time post mortem. Of these no less than 27 were associated with other deformities such as septal defects, pulmonary stenosis, and the entry of pulmonary veins into the left superior vena cava.

In 1939 Chouke was able to collect 205 reported cases, and in the eleven years since his paper was published a further 7 cases have been described (Prows, 1943; Dohn, 1944; Lam, 1945; Campbell and Hills, 1950; Dean, 1950). It was not until 1945 that the condition was diagnosed during life when Lam observed a persistent left-sided superior vena cava whilst he was operating on a patent ductus arteriosus. In the past three years, at the Birmingham Children's Hospital, a persistent left superior vena cava has been encountered in 4 of 14 cases undergoing surgical treatment for pulmonary stenosis, but it has not been seen in any of the 65 patients operated on for patent ductus arteriosus.

The introduction of such diagnostic methods as angiocardiography and right heart catheterization has resulted in the pre-operative recognition of the anomaly on several occasions (Campbell and Hills, 1950; Dean, 1950) and a further example of this will now be described.

Case Report

A one-year-old girl was referred to the out-patients department because of a cardiac murmur. She had always been well. She was small but active, with no cyanosis, no clubbing of the fingers, and no distension of jugular veins. The pulse was regular, equal in both wrists and collapsing, the blood pressure being 110/50. Pulsations in the femoral arteries were normal. There was a slight præcordial bulge. The apex beat was not well localized but could be felt to the left of the sternum in the fourth space. A loud systolic murmur, accompanied by a thrill, could be heard all over the præcordium but was loudest in the second left intercostal space near the sternum. In this area there was also an early diastolic murmur. No other abnormal physical signs were found.

Investigations. A blood count showed no essential abnormalities. Fluoroscopic examination showed enlargement of the heart, especially to the right of the sternum, giving the impression of dextrocardia. As the apex beat could be felt to the left of the sternum, this appearance was thought to be due to a greatly dilated right auricle, probably with all the pulmonary veins emptying into this chamber. Hilar pulsations were normal. Observed in the left anterior oblique view the heart was globular in shape and the ventricular enlargement appeared to be predominantly right-sided. The shadow of the great vessels was broader in this view than in the anterior-posterior position. There was no enlargement of the left auricle. The liver was on the right side.

The electrocardiogram gave no evidence of dextrocardia; the ventricular complexes in the standard leads were biphasic and of the QS type; the chest leads suggested right ventricular enlargement.

Angiocardiology was performed twice. On the first occasion the injection was made through the left antecubital vein. The diodone entered the heart through two superior venæ cavæ; the one on the right passed directly to the auricle but the left cava drained into the coronary sinus, which in turn, opened into the right auricle (Fig. 1 and 2). The intracardiac circulation was normal and in

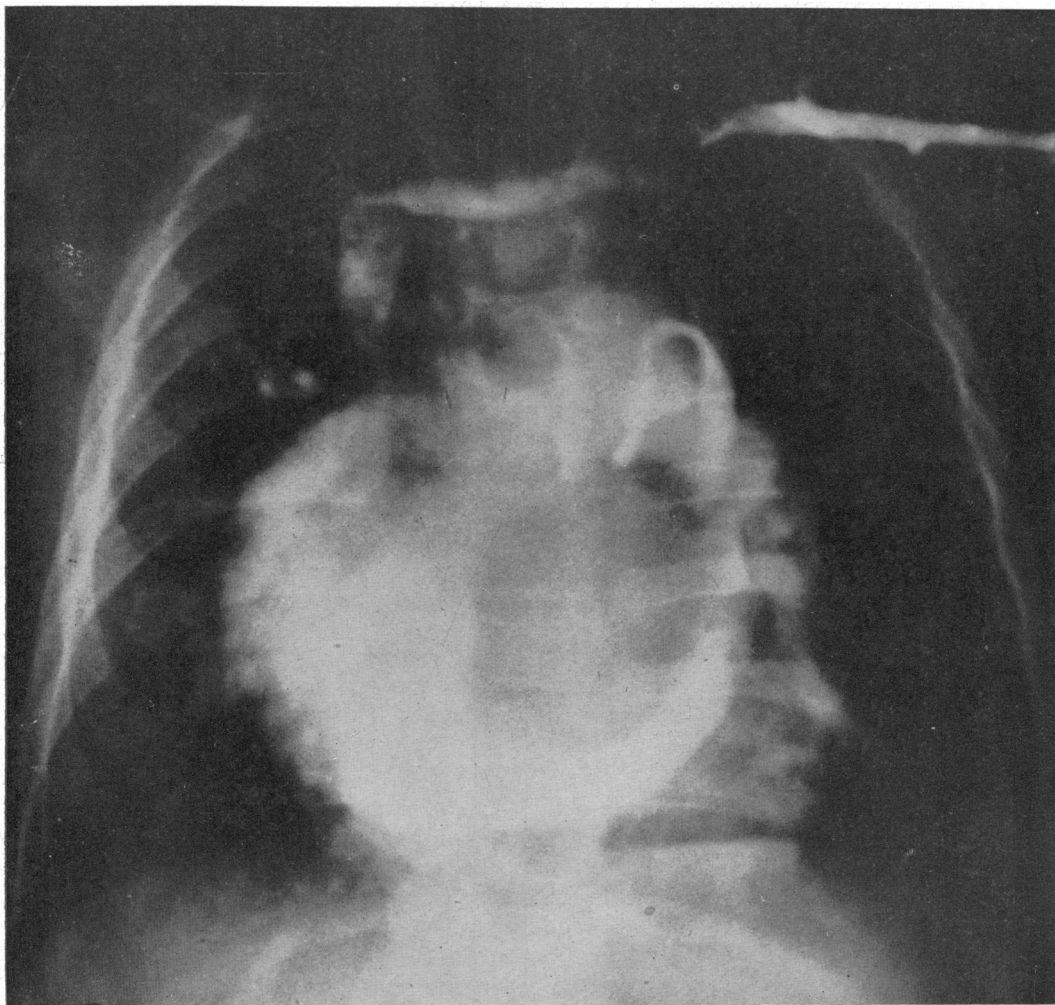


FIG. 1.—Angiogram taken at $1\frac{1}{2}$ sec. after beginning of injection.

the later films it could be noted that the pulmonary veins entered the left auricle. The position of the ventricles, however, was distinctly unusual.

The second angiogram was performed through the left external saphenous vein and films were taken in the left oblique position. This proved once again the abnormal position of the ventricles, and the pulmonary artery remained longer opaque than could be expected, making it probable that there was a patent ductus arteriosus.

Cardiac catheterization was performed through the right external saphenous vein. The catheter passed in an unusual way through the right auricle and right ventricle into the pulmonary artery. The oxygen content of the pulmonary artery was 25 per cent higher than the right ventricle, which indicated that the ductus arteriosus was patent.

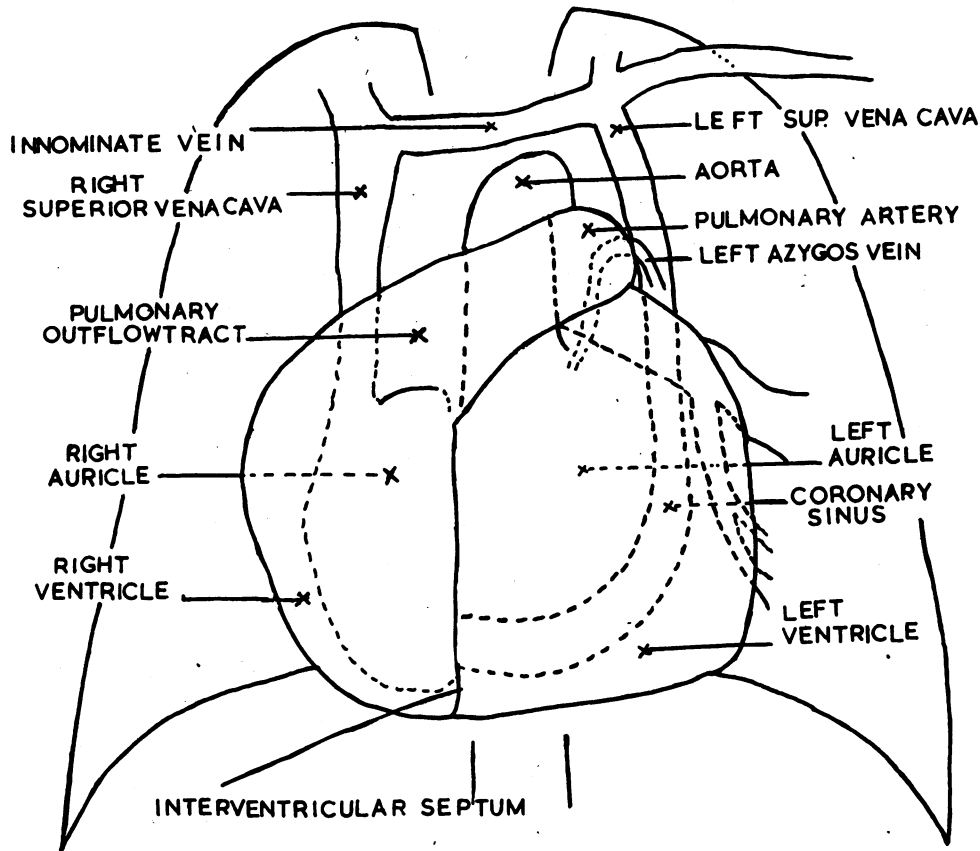


FIG. 2.—The position of the different chambers and vessels as drawn from the angiocardiograms.

Discussion

A case of bilateral superior venæ cavæ associated with incomplete rotation of the heart and patent ductus arteriosus is reported. In the first three months of foetal life both bilateral superior venæ cavæ (anterior cardinal veins) and the mid-line position of the interventricular and interauricular septum are present. This condition has persisted into extra-uterine life. It would appear, therefore, that the developmental arrest, which led to this condition, must have occurred in the third month of pregnancy, but careful interrogation of the mother failed to elicit any cause for the disturbance.

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